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Aircraft and
Special Equipment
CENTER



ANNUAL REPORT
1955



UNITED STATES DEPARTMENT OF AGRICULTURE
PLANT PEST CONTROL BRANCH
AGRICULTURAL RESEARCH SERVICE

AIRCRAFT AND SPECIAL EQUIPMENT CENTER
Methods Improvement Section
PLANT PEST CONTROL BRANCH
Agricultural Research Service
UNITED STATES DEPARTMENT OF AGRICULTURE

ANNUAL REPORT
Calendar Year 1955

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*Filled position vacated by Helen Wetherell.

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ORGANIZATION

The Aircraft and Special Equipment Center offices at Beltsville were moved from Room 237, Administration Building, Plant Industry Station, to Room 2, North Wing, of that building. The telephone numbers remain unchanged.

Following the establishment of shop headquarters at the Agricultural Research Center airfield, it appeared that there would be mutual advantage in consolidating shop and hangar facilities with those of the Forest Service. It was concluded that by building a hangar only and enlarging the Forest Service shop, both buildings could be used jointly by the two organizations with the result that such consolidation could be expected to (1) reduce the initial cost involved in providing separate facilities, (2) reduce operating costs and, (3) permit better coordination and exchange of services between shop personnel of the two organizations. This plan was put into effect and the erection of a hangar and the enlargement of shop facilities was substantially completed during the year.

On October 17, Ortha Klischer transferred from the Soil and Water Conservation Research Branch to fill the vacancy of secretary created by the resignation of Helen Wetherell.

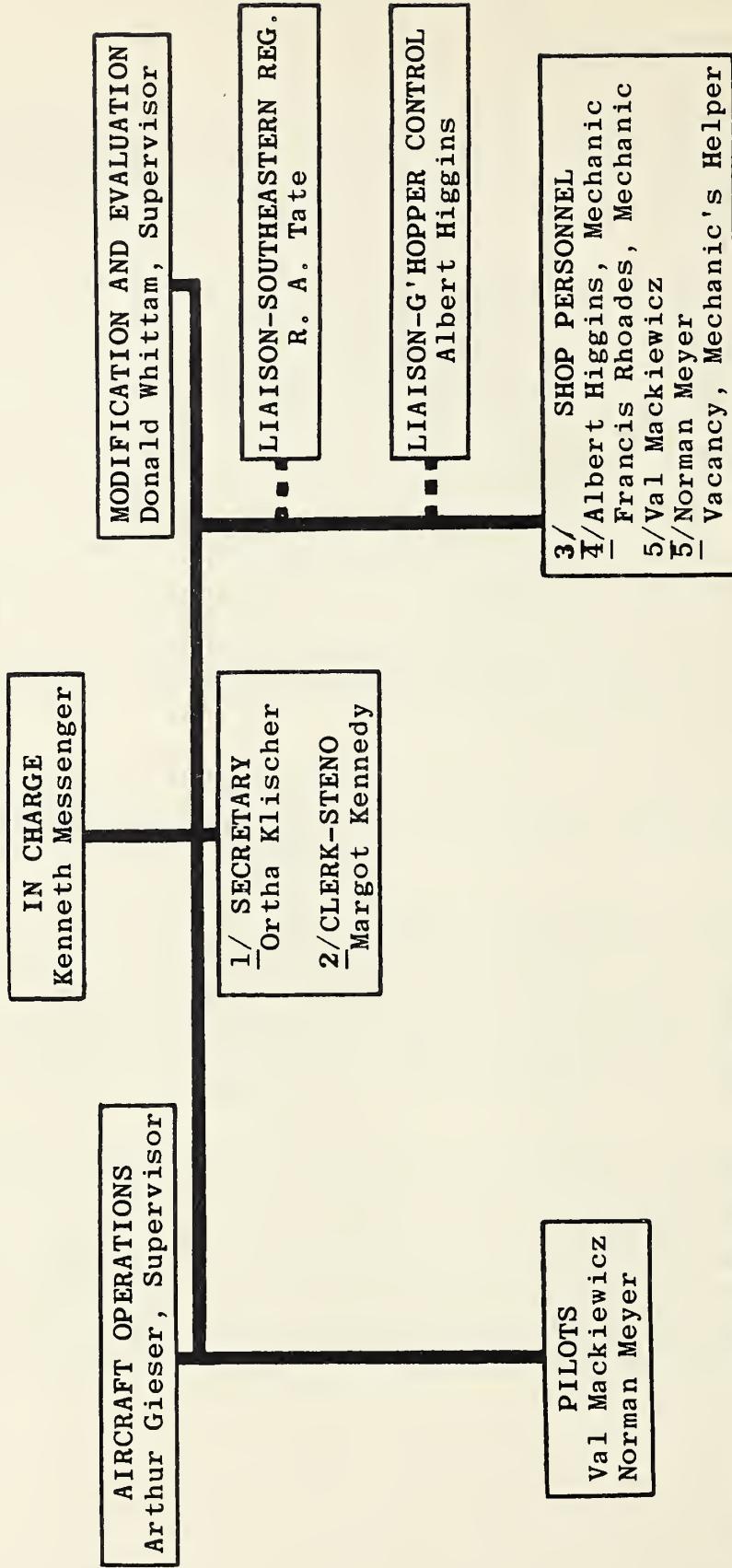
Albert Higgins, shop foreman, was transferred to the Grasshopper Control Project where his services were urgently needed. The functions of his new position include representing the Methods Improvement Section in an equipment-liaison capacity. The duties of shop foreman have been assigned to Francis Rhoades.

Francis Rhoades was awarded a Designated Aircraft Maintenance Inspector rating by the Civil Aeronautics Administration. This rating is given to a limited and select number of licensed aircraft-and-engine mechanics and cannot be obtained by request or application. With this rating, he is authorized to inspect and relicense Agricultural Research Service and Forest Service aircraft.

ORGANIZATION CHART

AIRCRAFT & SPECIAL EQUIPMENT CENTER
Methods Improvement Section
Plant Pest Control Branch
U. S. Department of Agriculture

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1/ Replaced Helen Wetherell October 17, 1955.

2/ Employed half-time by Economic Insect Survey Section.

3/ Field personnel of Branch projects on special shop assignments not shown.

4/ Transferred to Grasshopper Control Project June 19, 1955.

5/ Works as mechanic when not flying.

INFORMATIONAL SERVICES

During the year the service facilities of the Center were made available to Federal, State, and cooperating interests in connection with the dissemination of information pertaining to aircraft and special-purpose ground equipment and to methods of application. In addition to inquiries from within the Branch, requests for information were received from many foreign and other domestic sources. Also replies were made to more than fifty inquiries addressed to the Branch, ARS, or the Department. Assistance was given to agencies within the Department and to commercial organizations in locating or supplying bulletins, photographs, motion pictures, and other information on pest control subjects. Assistance was also given in the preparation of itineraries for foreign visitors interested in pest control equipment.

Of those who visited the Center during the calendar year, approximately 60 percent were associated with Federal Departments and private industry. The remainder represented a variety of foreign interests.

Meetings

During the reporting period, personnel of the Center participated in various conferences, spray schools, and short courses sponsored by Federal and State agencies, aerial applicator associations, and other organizations. The major programs and conferences attended were:

- ↓ 5th Agricultural Aircraft Association Convention
Sacramento, California
- ↓ 4th Annual Indiana-Ohio Agricultural Aviation
Conference
Lafayette, Indiana

Japanese Beetle and European Chafer Control
Method and Equipment Conference
Moorestown, New Jersey

- ✓ 2nd Annual Aerial Applicators School
Columbia, Missouri
- ✗ U. S. D. A. Agricultural Aviation Research
Conference
Washington, D. C.

Pacific Slope Branch, AES, Annual Meeting
Riverside, California

- ✓ Pesticide and Application Equipment Committee
Conference
Cleveland, Ohio
- ✓ Aerial Dusting and Spraying Conference
Wenatchee, Washington
- ✓ 16th Annual National Aviation Trades Associa-
tion Convention
Phoenix, Arizona

All of these meetings were attended at the request of the sponsoring organization. Informal talks or lectures were given at all of them and also at one a 15-minute television interview. At another, participation included organizing and moderating a symposium on agricultural aircraft research.

Publications

In response to many inquiries from the aerial applicator industry, a bulletin (ARS-81-2), "Hydraulic Drive System for Operating Dispersal Equipment in Agricultural Aircraft," was prepared and published. This bulletin describes the construction of a hydraulic drive system which was developed by the Center and used successfully in Branch aircraft for several years. The popularity of the bulletin, already indicated through responses from the aircraft industry, has been far greater than anticipated.

Material was compiled for a bibliography on agricultural aviation and submitted to the chairman of the 2nd Agricultural Aviation Research Conference for publication in the official report of the meeting.

Statistical information covering the 1954 agricultural aviation activities of the Center was prepared and submitted for inclusion in the annual Civil Aeronautics Administration report entitled "Aircraft at Work."

At the request of the Aircraft Industries Association, information was prepared for the "Aircraft Yearbook for 1954."

During the year, numerous requests were received for copies of Farmers' Bulletin No. 2062, "How to Spray the Aircraft Way." Parts of the bulletin were translated into Farsi and Arabic and published for use in the Middle East.

Through a rather extensive interchange of letters, assistance was given in the preparation of two scientific textbooks. (1) Manual Práctico de Fitopatología y Terapéutica Agrícola, by J. del Cañizo y Gómez and C. González de Andrés. (2) Sub Tropical Entomology (Revised Edition) by Walter Ebeling. In the first instance

information was given on aircraft equipment and application methods. In the second, on the classification and nomenclature of the rather complex array of modern airblast machines -- ranging from fog machines to high-volume spray blowers.

COOPERATIVE WORK

During the year technical assistance and equipment facilities of the Center were made available through cooperative agreements to Federal, State, and cooperating agencies in which aircraft are used for control, survey, and research.

Bureau of Land Management

The Center cooperated with the Department of Interior in the aerial spraying of a limited number of halogeton infestations in Idaho and Nevada during the summer of 1955. The undertaking contributed substantially to the development of information pertaining to methods of controlling halogeton. This work was conducted under the direction of the Bureau of Land Management with the technical advice of the Field Crops Research Branch.

Field Crops Research Branch

At the request of the Field Crops Research Branch, the Center cooperated in investigations to determine the effectiveness of aerial application of herbicides to control woody plants. The purpose of these cooperative investigations was to determine the relative effectiveness of different chemicals for control of undesirable brush, determine optimum rates and time of application, and to develop improved equipment for aerial application of herbicides. The Center provided a Piper Cub airplane and a pilot to make the necessary applications at three sites in the State of Oklahoma. The equipment used had a 5-nozzle spray-boom arrangement developed by the Center.

Texas A & M College

A series of tests conducted with Branch-owned aircraft has indicated the need for intensified studies to improve airplane spreading devices for the application of granular insecticides. Careful sampling of deposits showed that distribution patterns may be improved to some extent through adjusting airplane dispersal equipment but it became apparent that attention to basic design was required. Therefore a Stearman airplane was made available, through a cooperative agreement, to Texas A & M College for the desired research work. It is anticipated that the results of this investigation will lead to improved equipment with which to make future experimental applications.

Civil Aeronautics Administration

An increased demand for qualified agricultural pilots prompted the Civil Aeronautics Administration to request assistance in conjunction with the establishment of the first aerial applicators' school to be held in this country. A memorandum of agreement was drawn up providing for the use of Branch aircraft in making test flights to determine certain operational standards. This school was held at Texas A & M College in November.

After several conferences with the Civil Aeronautics Administration, that agency has agreed to significant revisions in the form of its annual survey of agricultural aircraft operations. Previous surveys did not show whether materials applied were for insect control, weed control, fertilizing, or defoliating. Future records will indicate the objective of work rather than the type of material applied.

Entomology Research Branch

To learn if the mass release of sterile male screw-worm flies over Florida is a practical means of ridding the southeast of this destructive livestock pest, the Entomology

Research Branch requested and was given technical assistance in the preliminary planning of a proposed program which would cover 50,000 square miles every week for a period of many months. This assistance consisted of estimating the number of aircraft and pilots, including their approximate cost, that would be required to complete such an undertaking.

At the request of the Entomology Research Branch, contracts were prepared for the use of aircraft to spray for beet leafhopper control in southern Idaho. They were reviewed by ARS Administrative Services and forwarded with a list of qualified applicator firms to the Regional Business Office in Minneapolis for processing.

Forest Service

Through a cooperative agreement with the Forest Service, technical assistance on control programs again was given in a number of areas during the year. This involved the selection of temporary airfields, checking pilot qualifications, inspection of approximately 100 contract aircraft, supervision of performance, and suggestions for improving aircraft equipment and application methods.

The programs and areas involved were spruce budworm control in New Mexico, Idaho, Oregon, and Montana, and Saratoga spittlebug control in Wisconsin.

Considerable attention was also given to the preparation and review of contract specifications for four of the western Forest Service regions. Recommendations for pertinent revisions were made to satisfy some of the special requirements of each of the forest regions.

In response to a request from the U. S. Department of Justice, a representative of the Center appeared as a witness at a hearing between the Forest Service and a commercial applicator firm at Casper, Wyoming. Useful information for the improvement of aerial spraying contracts was obtained through this experience.

State Contracts

The Massachusetts Department of Natural Resources, through the Gypsy Moth Control Project, requested assistance on a program for the treatment of approximately 815,000 acres of gypsy moth infested forest growth. Proposed contracts and preliminary plans for the program were reviewed and suggestions made to improve them.

In response to a request from the Michigan Department of Agriculture, an aircraft specialist inspected the qualifications of aircraft and pilots for compliance with the Michigan contract for gypsy moth control.

Surveys

To improve the efficiency and safety of Forest Service aerial surveys, progressive changes in operating procedure have been required. The Center made known its concern over the hazards involved in the use of single-engine aircraft for surveying some of the heavily timbered and mountainous areas in several of the western States. As a result of a Branch-Forest Service conference on this subject, it was mutually agreed that we would continue survey work in areas other than the mountainous regions of California, Idaho, Oregon, Montana, and Washington. Under this agreement, two surveys were made in the south during the months of January and May. Additional surveys were scheduled for the fall months, but in June this co-operative arrangement was terminated. Since the hazardous western areas were those most urgently requiring survey, the Forest Service considered that the over-all objective could be achieved more equitably by other means.

Through a cooperative agreement with the Southern Forest Experiment Station, the Cessna 180 and a pilot were furnished for a survey of selected southern pine beetle infested areas in Alabama. The survey, made in January, covered approximately 1400 square miles of Talladega National Forest. During the month of May, a more extensive aerial survey was conducted to compare the extent and density of

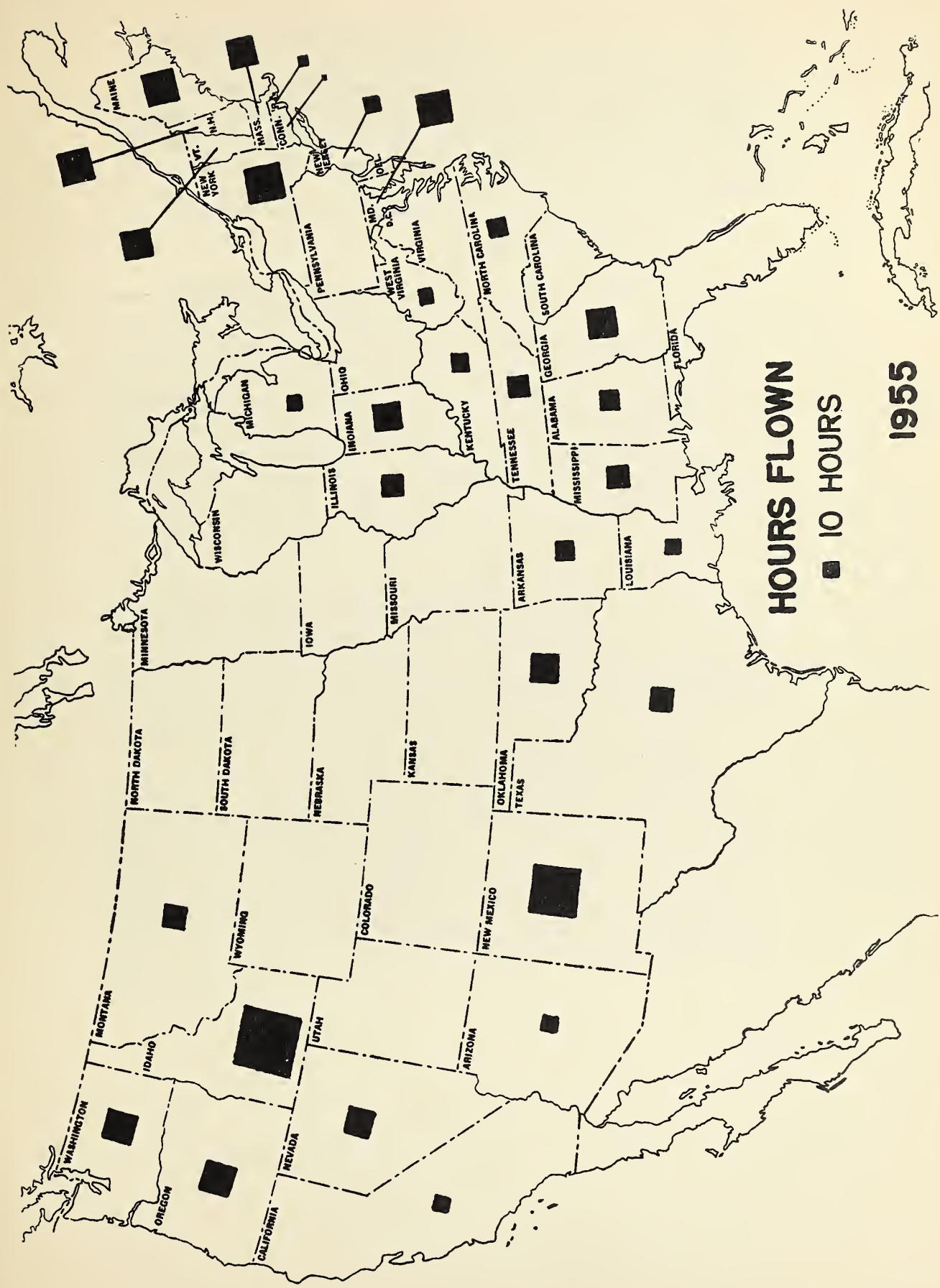
southern pine beetle infestations with that shown by surveys of previous years. Approximately 18,000 square miles of Federal, State, and privately-owned timberlands were examined for southern pine beetle damage in the States of Alabama, Arkansas, Louisiana, Mississippi, and Texas.

CONTROL WORK

Technical assistance on the preparation of Branch contract specifications, the inspection of aircraft and pilot qualifications, the supervision of control operations, and experimental application of insecticides were major functions of the Aircraft and Special Equipment Center throughout the calendar year. A progressively increasing amount of time has been spent to effectively discharge these duties. The insects involved in these programs were grasshoppers, gypsy moths, European chafers, Japanese beetles, and white-fringed beetles.

Contracts

Various individuals of the Branch and a few commercial applicators have suggested that contracts be written so that each operator may be invited to quote prices to provide the insecticide; or the transportation of the insecticide to the airstrips, including storage and loading facilities at the airstrips; or the aerial application; or a combination of the above materials and services. The suggested changes aroused sufficient interest among projects identified with aircraft contracts to warrant revision of the contract form, incorporating these desirable features. The revised specifications were reviewed and approved by the Administrative Services Division and sent to the projects that were planning contract work during the year.



1955

After evaluating the aircraft contracts used during the 1955 control season, recommendations for significant revisions have been made and submitted to those concerned. This subject has also been discussed at length with aerial applicators at various meetings throughout the country with noticeable improvement in mutual understanding.

Grasshopper Control

During the reporting period, supervisory assistance was provided to the Grasshopper Control Project in connection with control programs in the States of Arizona, New Mexico, Oklahoma, Oregon, Texas, and Washington. Two aircraft and pilots were made available for inspecting and calibrating contract aircraft and for checking their work after spraying began. In several instances recommendations were made for equipment modifications and improved flight procedures.

Gypsy Moth Control

In compliance with requests from the Gypsy Moth Control Project, a supervisory pilot was assigned to control programs in Connecticut, New York, and Vermont to evaluate the suitability of aircraft and pilots provided by contractors and to assist with the technical direction of the work.

Gypsy Moth Defoliation Survey

During the month of July, the Piper Cub and a pilot were made available for an aerial gypsy moth defoliation survey in Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont. Also, training was given to project personnel to enable them to conduct such surveys in the future with contract aircraft.

European Chafer Control

The Center collaborated with the Japanese Beetle Control Project and the States of West Virginia and New York in the experimental aerial application of granular dieldrin to further the study of this method of treatment for European chafer control. An airplane and pilot were made available on each occasion to make these experimental applications.

Japanese Beetle Control

During the fall and spring, suburban and rural areas of Illinois, Indiana, Michigan, Maine, Georgia, Kentucky, and Tennessee were treated by Branch aircraft for control of the Japanese beetle. A total of 248,550 pounds of granular dieldrin was applied to 10,247 acres on these programs. It is anticipated that information gained from these applications will serve to establish a procedure for future operations by contract aircraft.

White-Fringed Beetle Control

After an isolated white-fringed beetle infestation was discovered near Vineland, New Jersey, the Center was asked to participate in an eradication program designed to rid that area of this destructive crop pest. Recovery funnels were set up to test the efficiency of a new spreader on the Piper Cub airplane by measuring the uniformity of deposit on the fields treated. Approximately 154 acres were treated with granular dieldrin at the rate of 50 pounds per acre.

Similar applications of granular insecticide were made during the year at various locations in Georgia and North Carolina. Most areas were wooded and therefore could not be treated with ground equipment.

1955 AIRPLANE TREATMENTS FOR JAPANESE BEETLE CONTROL

Season	State	Area	Acres Treated	Pounds Material
Spring	Ill. - Ind.	Sheldon	4,722	122,900
	Maine	Bar Harbor	130	4,000
		Subtotals	4,852	126,900
Fall	Georgia	Atlanta	88	2,650
	Indiana	Wanatah	100	2,000
		South Bend	750	15,000
		Logansport	300	6,000
		Terre Haute	500	10,000
	Illinois	Decatur	300	6,000
	Kentucky	Louisville	812	16,250
		Russell	1,000	24,750
	Michigan	Niles	120	2,400
		Lansing	400	8,300
		Farmington	245	4,900
	Tennessee	Mountain City	780	23,400
		Subtotals	5,395	121,650
		Totals	10,247	248,550

1955 AIRPLANE TREATMENTS FOR EUROPEAN CHAFER CONTROL

Season	State	Area	Acres Treated	Pounds Material
Spring	West Virginia	Capon Bridge	96	3,300
Fall	New York	Salina-Syracuse	545	16,200
		Totals	641	19,500

All material applied for Japanese beetle and European chafer control was 30-40 mesh attaclay impregnated with 10% granular dieldrin. All applications were at the rate of 20 pounds per acre with the exception of the following:

A 40-pound treatment at Capon Bridge (96 acres) and 30-pound treatment at Sheldon (2,583 acres), Russell (450 acres), Mountain City (780 acres), Atlanta (88 acres), and Bar Harbor (130 acres).

1955 AIRPLANE TREATMENTS FOR WHITE-FRINGED BEETLE CONTROL

Season	State	Area	Acres Treated	Pounds Material
Spring	New Jersey	Vineland	154	7,700
		N. Carolina	26	1,150
		Wilson	78	3,150
	Georgia	Jacksonville Marine Corps Airfield	225	9,000
		Wilmington	82	3,300
		Sylvania	175	7,000
		Swainsboro	10	400
		Brunswick	95	3,800
		Manassas	180	7,200
		Ocilla	25	1,000
		Cordele	25	1,000
		La Grange	380	14,900
		Athens	82	3,300
	Subtotals		1,537	62,900
Fall	Georgia	Sandersville	25	1,000
		Kite	25	1,000
		Macon	110	4,400
		Ft. Valley	50	2,000
		Fitzgerald	46	1,850
		Douglas	68	2,700
		La Grange	116	4,700
		Athens	55	2,200
		Louisville	55	2,200
		Wadley	75	3,000
		Sylvania	70	2,800
		Manassas	295	11,800
		Daisy	50	2,000
	Subtotals		1,040	41,650
Totals		2,577	104,550	

All material was 30-40 mesh attaclay, impregnated with 10% dieldrin, applied at the rate of 40 pounds per acre.

EQUIPMENT MAINTENANCE AND MODIFICATION

Ground Equipment

To develop new or improved methods and procedures for the control of Japanese beetles, it was mutually agreed during a conference with representatives of the Japanese Beetle Control Project that reciprocal advantages would accrue from the assignment of an equipment specialist to study treatment problems in quarantine areas. In this connection, a representative of the Center made an inspection trip early in March to acquaint himself with the various dispersal equipment problems and to discuss them with field supervisors. The results of this inspection appear to be completely satisfactory in that the Center is in a better position to appraise and recommend commercial equipment which can be adapted to meet specific needs of Japanese beetle control work.

Similar consideration was also given to white-fringed beetle control equipment problems. Comments relative to currently available ground equipment were invited from personnel identified with the White-Fringed Beetle Control Project and their views were given consideration in the current development of spreading devices for the application of granular insecticides.

The Japanese Beetle Control Project supplied the Center with a commercial seeder for study in connection with the application of granular insecticides. That project also made available the services of a mechanic to assist with the modification and calibration of the machine.

To supplement the hand seeders formerly modified for broadcasting granular insecticides, two wheelbarrow-type spreaders were designed. At the request of the Japanese beetle project a wheelbarrow broadcaster, using an impeller similar to that employed in the hand seeder and featuring a metered feed of the material, was developed and prepared for field evaluation in nurseries.

A similar wheelbarrow unit of simpler design, with gravity-flow principal, was fabricated for test and evaluation on white-fringed beetle control.

Because of the growing demand for effective granular insecticide applicators, inquiries were made of all known commercial sources of seeders that might be adaptable to handling granulated insecticides. Few seemed to have promise, but a Skibbe broadcaster, encountered by the Section Head, offered possibilities. Therefore, one was purchased and modified to meet the special requirements involved. The White-Fringed Beetle Control Project has mounted this machine on a jeep and is testing it under field conditions. The manufacturer was sufficiently interested in this modification to visit the Center to inspect it.

Inquiries were made of all known sources of aerosol and fogging machines, as well as smoke generators, in an effort to locate and adapt a unit that can be used to mark flight lines in wooded and range areas being treated by aircraft.

The Center collaborated with the Gypsy Moth Control Project in the modification of currently used gypsy moth traps. The ultimate objective of a disposable paper trap was further investigated through the design of a prism-shaped trap made by folding one piece of light cardboard. A source of weather resistant paper suitable for fabrication of such a trap was investigated with negative results.

The modification of the metal trap to reduce its bulk while in storage and being transported to the field was investigated. A simple means of locking the ends of a flat sheet of metal to form the cylinder of the trap was devised and presented to the project for consideration.

The reduction of heavily infested gypsy moth areas, suitable for the collection of pupae required in obtaining sex-attractant material for baiting gypsy moth traps, has made

it desirable to conduct this work simultaneously in several areas. To facilitate doing this work at several locations, one of the tables used in the clipping portion of the operation was delivered to the Center for modification. A small electrically operated blower, with switch and electrical outlet, was installed to replace the previous exhaust method in which several tables were used together and piped to one large blower. This self-contained system will permit each table to be used separately when and where needed. To reduce the area required for storage and to ease the handling of the table in transit, the legs were made removable with means provided to secure them to the underside of the table for compactness. If these modifications prove practical, other tables used for this work will be reworked similarly.

During a golden nematode eradication experiment it was noted that the plows used did not completely turn under the top layer of soil during the second application of soil fumigant. Therefore, investigations were made of plow attachments that might serve to accomplish this purpose. A promising combination coulter-jointer was purchased and arrangements made to borrow a plow for soil-turning tests as soon as soil conditions are equitable.

Aircraft Equipment

The modification and calibration of a new spreader, attached to the Piper Cub airplane, was effected during the reporting period. Since considerable difficulty was experienced with the standard gate valves, some modification was necessary to improve their operation. The redesigned valves worked satisfactorily.

Several tests were conducted with this spreader in an effort to further improve the uniformity of distribution of granular insecticides. Results showed that the spreader produced an effective 40-foot swath when flown at an altitude of 75 feet.

Flight tests were conducted with a Stearman airplane to determine the adequacy of the original N3N bait spreader to distribute granular materials. Although excellent results were previously obtained with baits and seeds, it proved much less effective than anticipated. Therefore, a rice-seeding spreader designed by Texas A & M College was purchased and installed on Stearman N1218N for further experimentation.

Cessna N2234D

Minor maintenance and a thorough inspection was performed on this airplane to prepare it for another season. A malfunctioning master-cylinder for the wheel brakes was replaced with a new unit. Precision radio repair work was done by an approved radio facility.

Cessna N1643C

The engine of this airplane required a major overhaul and was therefore replaced with a factory-overhauled engine before the airplane was sent into the field for the summer season. A thorough inspection and indicated maintenance was performed on the propeller by an approved overhaul facility.

Piper Super Cub N1908A

Due to the failure of a landing gear strut on this airplane, one wing and the propeller were damaged. The damage was sufficient to prevent the continued operation of the airplane. However, to permit prompt resumption of work, a new wing was made available by the factory for replacement. The propeller was repaired and overhauled by the manufacturer.

After four seasons of operation, the engine was removed from the Piper Cub airplane and major-overhauled by the factory. Installation of the reworked engine and accessories was accomplished by personnel of the Center. The airplane was given a thorough inspection and relicensed.

Stearman N1218N

The propeller pitch actuating mechanism was disassembled, cleaned, and replacement seals were installed where needed. In compliance with a CAA maintenance directive, this airplane was flown to New Castle, Delaware, to have the propeller-shaft thrust nut threads reworked.

During the latter part of the season, some minor maintenance was required on the wing structure to permit the continued operation of this airplane. The airplane was dismantled late in 1955 for the necessary replacement of fabric on the wings and tail surfaces and for inspection and repair of structural members.

Stearman N55692

Except for the inspection required on all aircraft, no major repairs were necessary to prepare this airplane for the 1955 season.

Special Equipment Forms

In view of the desirability of more accurate current appraisal of special-purpose field equipment, Form PPC 8-7 (9-55), Field Equipment Annual Report, was prepared. This form provides for the description of all Branch special-purpose field equipment and automotive vehicles other than passenger cars. The form is designed to supplement Branch property records and to serve as a guide for investigating the suitability of each equipment unit to perform its intended function. Branch projects will be requested to fill out these forms each year and submit them to the Methods Improvement Section for review.

A second form, PPC 8-8 (9-55), Special Equipment Report, provides a ready means for accumulating information from many field sources on pest control equipment that may have applicability to Branch work.

Copies of these equipment report forms are included in this report.

UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Research Service - Plant Pest Control Branch

FIELD EQUIPMENT ANNUAL REPORT *

(To include all special-purpose field equipment
and automotive vehicles other than passenger cars.)

Station making report: _____ Date: _____

1. Item: _____ Class: _____ Property No. _____

2. Purchase Order No. _____ Cost: _____ Date purchased: _____

3. Charged to: _____ Usual Location
of Equipment: _____

4. Condition: Good _____ Fair _____ Poor _____ Age: _____ yrs. Mileage: _____

5. Specifications (as pertinent):

Trade name: _____ Model: _____

Mounting: Fixed _____ Rotation _____ Truck _____ Trailer _____ Skid _____

Weight complete unit: _____ lbs. Boom length: _____ ft.

Tank capacity: _____ gals. Hopper capacity: _____ cu.ft.

Pump: Type _____ Make _____ Cap. _____ gpm. Pressure _____ psi.

Blower Fan: Type _____ Size _____ Capacity _____ cu.ft/min.

Engine: Make _____ Model _____ Size _____ hp.

6. If mounted on vehicle give make, year, and capacity of vehicle.

7. Intended use: _____

8. Is the unit fully satisfactory for your work? If not,
describe shortcoming on reverse side. Yes No

9. If replacement is desirable, make recommendation on reverse side.

10. Show usage of item by line through appropriate blocks below:

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Periods of use last year												
Proposed use this year												

11. Other information: _____

(If additional space is needed, use reverse side.)

Submitted by: _____ Signature _____ Title _____

*By calendar year - to be submitted in duplicate each January to
Methods Improvement Section

PPC 8-8
(9-55) UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Research Service - Plant Pest Control Branch

SPECIAL EQUIPMENT REPORT*

(Report on observations of pest control equipment, regardless of ownership, that may have applicability to work of Branch.)

Location: Town _____ County _____ State _____

Description of work being done, including pest, pesticide, application rate, etc.:

Key personnel on work and agency or company connection:

Equipment Appraisal: Give name, model, power, etc., of equipment and your opinion of how well it performs its job.

For what Branch work might this type of equipment be suitable?

Reported by _____ Date _____
*Submit in duplicate to Methods Improvement Section

AIRCRAFT FIELD ASSIGNMENTS - 1955

MAKE	Reg. No.	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Cessna	2234D	L	L	L		BLK		LAK	AK	L			
Cessna	1643C	ELK				FALK	AK	AK	LK	L	L	L	
Piper	1908A	L	L	LK	DLK	HL	JK	BIL	IK		DLK	DK	
Stearman	1218N		L	CLK	CK	LMK	K	CLK	CK	CGK	GK		
Stearman	55692		LGK	GK	GM	M	M	M	M	M	M	M	

PROJECT	LOCATION	CODE	PROJECT	LOCATION	CODE
*Grasshopper	Ariz. N. Mex. Okla. Ore. Wash. Ida.	A	Brush Control Gypsy Moth Survey	Oklahoma New England	H I
*Gypsy Moth	New England, New York	B	Halogeton Ferrying	Nev. Ida.	J K
Jap. Beetle	Ill. Ind. Me. Ky. Tenn. Mich.	C	Tests and Evaluation		L
Eur. Chafer	West Virginia, New York	D		Texas A & M College	M
Forest Survey	Alabama	E			
Forest Survey	Tex. Ala. La. Ark. Miss.	F			
White-Fringed Beetle	N. J., N. Car., Ga.	G			

*Contract Supervision

**Loaned to Texas A & M College for development of improved granular spreader device.

AIRCRAFT OPERATIONS - 1955

Cost (in dollars) of Work Done by Aircraft of the Aircraft & Special Equipment Center

Aircraft	Gas and Oil Cost	Repair 1/ Repair	Mtce.	Engine	Aircraft	Depreci- ation 2/ ation	Total Costs	Hours Flown	Av. Cost per Hour	Project
Piper 1908A	31	876	4/	10	14	931	10			Test Flights
	66	282	-	25	36	409	25			European Chafer
	278	1363		211	319	2171	211			Gypsy Moth
	140	392		49	53	634	49			Halogeton
	68	282		26	36	412	26			Oak Brush
	24	73		8	12	117	8			White-Fringed Beetle
Totals	607	3268		329	470	4674	329	14.21	5/	
Cessna 2234D	46	7		18	75	146	16			Test Flights
	232	51		98	450	831	87			Grasshopper
	123	22		55	225	425	49			Gypsy Moth
Totals	401	80		171	750	1402	152	9.22		
Cessna 1643C	29	155		28	97	309	8			Test Flights
	302	367		252	645	1566	72			Forest Service Survey
	310	387		270	658	1625	77			Grasshopper
Totals	641	909		550	1400	3500	157	22.29		
Stearman 1218N	157	240		72	50	519	18			Test Flights
	1168	1186		520	285	3159	130			Japanese Beetle
	376	371		184	165	1096	46			White-Fringed Beetle
Totals	1701	1797		776	500	4774	194	24.61		
Stearman 55692	6/	37	5	20	42	104	5			Test Flights
	504	60	216	458	1238	54				White-Fringed Beetle
Totals	541	65		236	500	1342	59	22.75		

1/ Includes mechanics' salary, pilots' salary while working in shop, hired maintenance, and all parts.

2/ Engine depreciation computed on hourly basis for replacement or major overhaul.
3/ Aircraft depreciation computed at purchase price, amortized in 10-year period.

4/ Cost of replacing damaged wing included.

5/ High average cost due to extensive modifications and repairs.

6/ Costs through May 4. Plane loaned to Texas A & M College on that date.

VEHICLE INVENTORY

The following list covers vehicles located at Beltsville:

On Hand January 1, 1955

<u>Type</u>	<u>Reg. No.</u>	<u>Location</u>
Cessna 170B	N2234D	Beltsville
Cessna 180	N1643C	Beltsville
Piper Super Cub	N1908A	Beltsville
Stearman	N1218N	Beltsville
Stearman	N55692	Beltsville
Pontiac Sedan '48	A39946	Beltsville
Ford Pickup '50	A35257	Beltsville
Internat'l 2T Tr. '50	A36723	Beltsville
Towmotor Fork Lift	10353634	Beltsville

Disposals - 1955

<u>Type</u>	<u>Reg. No.</u>	<u>Disposition</u>
Internat'l 2T Tr. '50	A36723	To G'hop. Control
Towmotor Fork Lift	10353634	To Ag. Eng. Res.

On Hand December 31, 1955

<u>Type</u>	<u>Reg. No.</u>	<u>Location</u>
Cessna 170B	N2234D	Beltsville
Cessna 180	N1643C	Beltsville
Piper Super Cub	N1908A	Beltsville
Stearman	N1218N	Beltsville
*Stearman	N55692	College Sta., Tex.
Pontiac Sedan	A33946	Beltsville
Ford Pickup '50	A35257	Beltsville

*Loaned to Texas A & M College for development of spreader device for granular materials.

